

6

<b>Notice of Allowability</b>	Application No.	Applicant(s)	
	10/631,055	FROMMER ET AL.	
	Examiner	Art Unit	
	Kevin P. Rizzuto	2183	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to application filed 7/31/03, drawings filed 11/10/03 and change of address filed 2/28/05.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☒ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date 3/17/06.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)   | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date <u>7/31/06</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                    |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material                              | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance              |
|   | 9. <input checked="" type="checkbox"/> Other <u>Annotated Drawing.</u>                 |

### EXAMINER'S AMENDMENT/COMMENT

1. Claims 1-20 are allowed.
2. The following changes to the drawings are required: Fig. 1, Branch History Tables (BHTs) 107 is depicted in the drawings as "BMTs" 107. Appropriate correction, that is, changing "BMTs" to "BHTs", is required. See attached annotated drawings for further clarification. For further information, see also MPEP 608.02(w) – 608.02(z).

### *Reasons for Allowance*

3. The following is an examiner's statement of reasons for allowance:
  - a. Col et al., U.S. Patent 6,189,091, teach an apparatus and method for speculatively updating global branch prediction/history bits and restoring upon a branch misprediction using a saved copy. (Abstract)
  - b. Col et al., U.S. Patent 6,526,502, teach an apparatus and method for speculatively updating global branch prediction/history bits and restoring upon a branch misprediction using a saved copy. (Abstract)
  - c. Tran, U.S. Patent 5,822,575, teaches a global branch predictor that speculatively updates. The branches in the predictor are indexed by their assigned tags and upon a branch misprediction, the assigned tags are used to restore the global branch predictor to a non-speculative point. (Abstract, figs. 3 & 4, cols. 12-14)

d. Sinharoy, U.S. Patent 6,745,323, teaches global branch history vector recovery caused by branch mispredictions and other redirection events.

(Abstract)

e. Sinharoy, U.S. Patent 6,598,152, teaches global branch history vector recovery caused by branch misprediction flushes and non-branch flushes.

However, Sinharoy specifically states, "However, a non-recoverable condition occurs if a flush occurs for a non-branch instruction in a dispatch group not having a branch instruction, and then the GHV count is set to 0." (Abstract, col. 8, line 59 – col. 9, line 10)

f. Sinharoy, U.S. Patent 6,877,089, teaches "hint instructions" that uniquely preserve and reuse branch predictions replaced in a branch history table.

(Abstract)

g. Sinharoy, U.S. Patent 6,823,446, teaches a method and apparatus for performing branch predictions using dual branch history tables and also updating said branch history tables. (Abstract)

h. Shiell, U.S. Patent 6,598,152, teaches maintaining global branch history table which contains both speculative and actual branch history. The global branch history table can be recovered in the case of a branch mis-prediction.

(Abstract, fig. 5)

i. D'Sa et al., U.S. Patent 6,598,152, teach a branch history table and a trace cache branch history table, both having the ability to recover from branch

mispredictions or other events/traps which require restoring the tables. (Cols. 8 and 12)

j. Check et al., U.S. Patent 6,108,776, teach a global branch history table and selectively disabling its operation. (Abstract)

4. The prior art of record teaches restoring/recovering global history vectors as cited above, however, fails to teach or suggest individually or in combination a system or method for recovering a global history vector including the step (or, "logic for") "transmitting a command to said global history vector mechanism to enter a second mode if said flush operation is a flush to a group of instructions that contains no branch instructions and said tag does not equal said next-to-write pointer" as required by independent claims 1 and 11. (Emphasis added by Examiner).

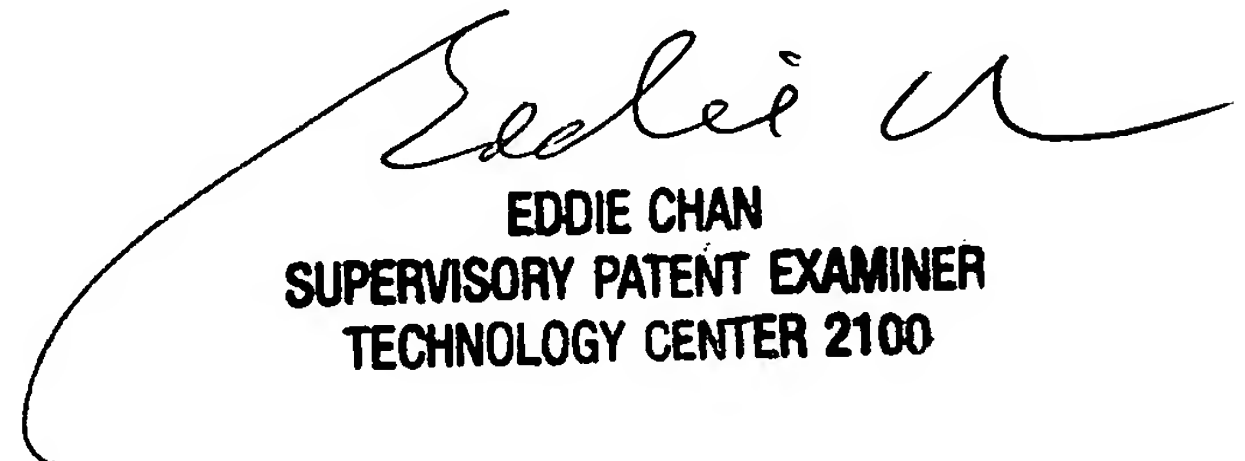
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P Rizzuto whose telephone number is (571) 272-4174. The examiner can normally be reached on M-F, 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (571) 272-4162. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KPR



**EDDIE CHAN**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2100**



Scott Frommer, et al.  
AUS920030452US1

1/5

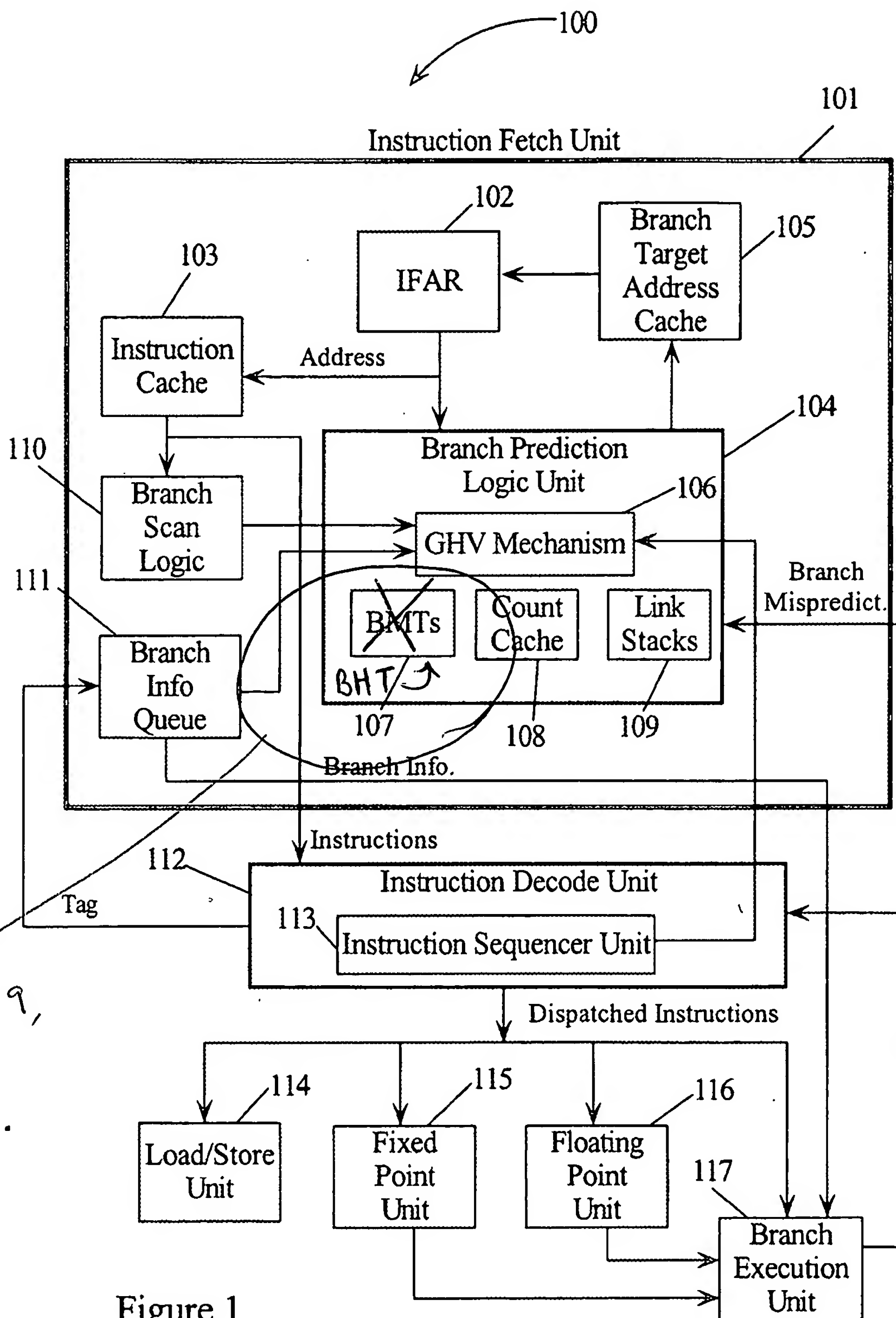


Figure 1